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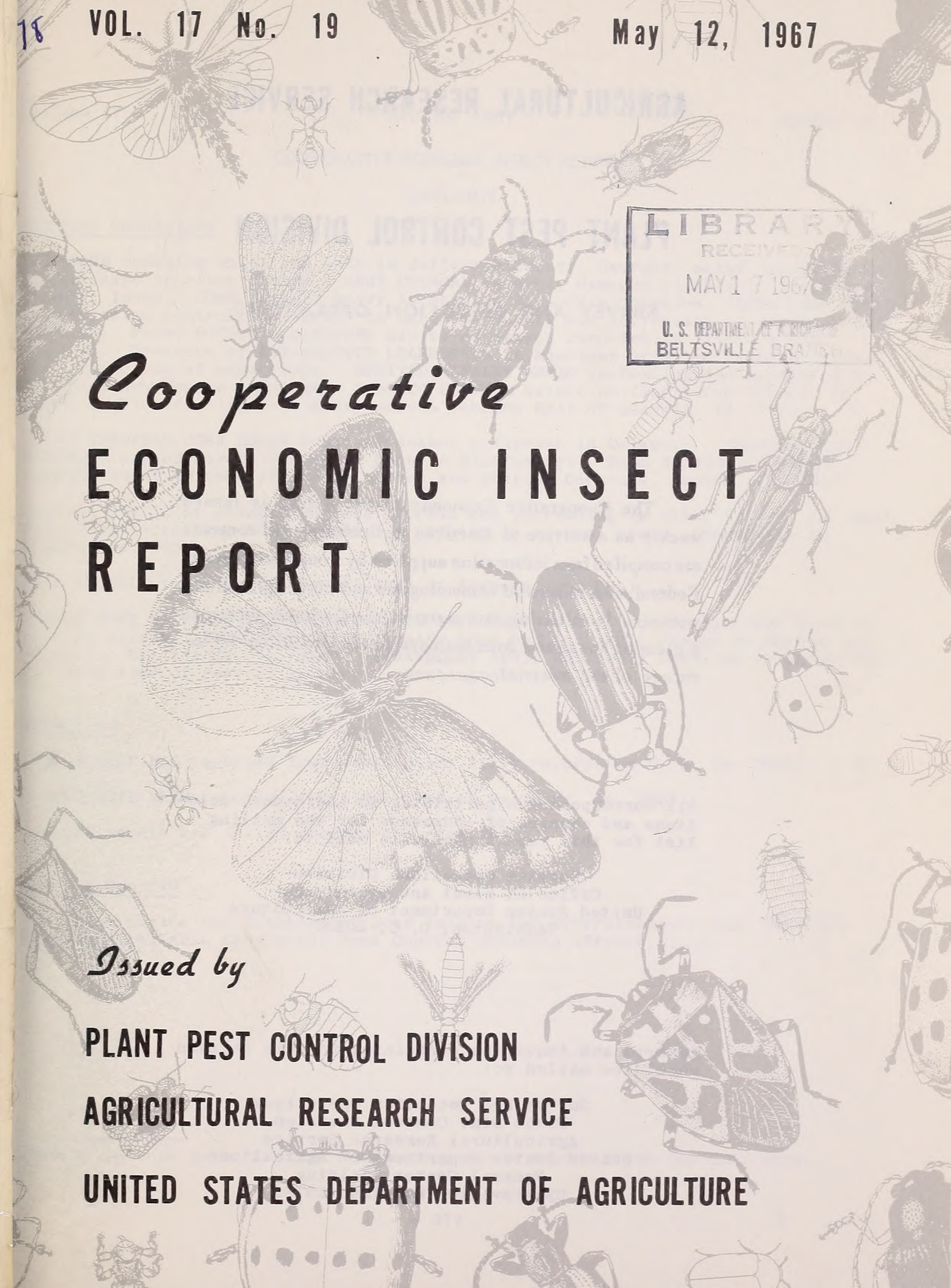

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 17 May 12, 1967 Number 19

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM damaging wheat and oats in Jefferson County, Georgia; moths appearing in light traps in other States. ARMY CUTWORM severely damaged alfalfa in Nez Perce County, Idaho. CORN EARWORM heavy in corn in 2 Georgia counties. CORN LEAF APHID necessitated controls on barley in Maricopa County and increasing in Graham County, Arizona. First POTATO LEAFHOPPER adults of season reported in Illinois and Indiana. Presence of SIX-SPOTTED LEAFHOPPER in Michigan prompted recommendation for protection of some crops. SPOTTED ALFALFA APHID increasing and spreading in southern New Mexico counties. TOBACCO BUDWORM severe on flue-cured tobacco in areas of Florida; light to heavy across Tobacco Belt of Georgia. (p. 379).

First EUROPEAN CORN BORER adult of season collected in Delaware. SOUTHERN CORN ROOTWORM caused severe damage to corn in Mississippi. PALE WESTERN CUTWORM damaged wheat in some fields in Morton and Stanton Counties, Kansas. (p. 380).

ALFALFA WEEVIL of primary concern in Ohio and increasing in other States. (p. 382). PEA APHID increasing on and damaging alfalfa in several areas, decreasing in others. (p. 383).

BOLL WEEVIL winter survival very high in Alabama. (p. 384).

CITRUS RUST MITE and TEXAS CITRUS MITE increased to new record highs for April on Florida citrus. EUROPEAN EARWIG causing some bud and fruit damage to oranges at Oroville, California. (p. 388). STRAWBERRY APHID unusually heavy on strawberries for this time of year at Vancouver, Washington. (p. 389).

Detection

● A LACE BUG reported from Washington; first record for U. S. (p. 393).

A GELECHIID MOTH reported for first time in Delaware. (p. 393).

For new county and island records see page 393.

Special Reports

The Preservation and Shipment of Dead Insects for Determination. (pp. 396-400). Reprints available from Plant Pest Control Division offices.

Reports in this issue are for week ending May 5 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING MAY 8

HIGHLIGHTS: It was another wet and even colder week as spring retreated and winter held fast to the Great Plains and a blizzard hit Wyoming and Nebraska. Tornadoes and severe thunderstorms struck the middle and lower Mississippi Valley. Dry in Florida.

PRECIPITATION: The Far Southwest, from California to the High Plains of Texas, received no rain or only light sprinkles. Only light precipitation fell from the Far Northwest to the northern Great Plains. A May Day blizzard brought substantial precipitation to portions of Wyoming and Nebraska. Snowfall in Nebraska measured 3-5 inches, but areas near Stromsburg received 8-10 inches. Eastern Kansas received slow soakers on several days with weekly totals exceeding one inch. Rainfall over wide areas from central Texas to southern New England exceeded 1 inch with many 4- to 5-inch totals in parts of Arkansas, Louisiana, Mississippi, and Alabama. Parts of the lower Rio Grande Valley and the Florida Peninsula received no rain or only light sprinkles. Tornadoes and severe thunderstorms with hail and high winds occurred over some Central and Southeastern States with a few areas suffering considerable damage. One of the worst tornadoes struck Birmingham, Alabama, at 5:50 p.m. Saturday. Reports indicate 1 death, 100 persons injured, and damages in excess of $1 million.

Weather continued on page 394.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - GEORGIA - Cutting off seed heads and feeding on foliage of oats and wheat in Jefferson County. (Eubank, Nolan). ARKANSAS - Absent in wheat in Conway and Jefferson Counties. Few light infestations reported in Chicot and Desha Counties. (Ark. Ins. Sur.). ILLINOIS - Larvae 12 per linear foot of row in wheat field in southwest district. (Ill. Ins. Rpt.). OHIO - Moths appearing at blacklight traps in Wayne County. (Berry). MARYLAND - Adults averaged 8 per night in blacklight trap at Centreville, Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - Very numerous in blacklight traps in Sussex County. (Burbutis). NEW JERSEY - First moths of season collected near New Brunswick April 29. (Ins.-Dis. Newsltr.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - IDAHO - Larvae, up to 6 per plant, caused moderate to severe damage on several acres of alfalfa near Spalding, Nez Perce County. (Kambitsch). NEBRASKA - Counts decreased in panhandle area. (Andersen).

BEET LEAFHOPPER (Circulifer tenellus) - ARIZONA - Light in all sugarbeet fields in Graham County. (Ariz. Coop. Sur.).

CORN EARWORM (Heliothis zea) - GEORGIA - Heavy in whorls of corn in Lee and Baker Counties. (Andrews, French). ALABAMA - Full-grown and first-stage larvae light to medium on corn in several Houston and Henry County fields. (McQueen). MISSOURI - Ranged 1-6 first and second instars per 10 sweeps in alfalfa in extreme southwest area. (Munson).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Building up on late-planted barley in Graham County. Controls still necessary in some Maricopa County fields. (Ariz. Coop. Sur.). MARYLAND - Small colonies on upper leaf bracts of barley at Easton, Talbot County. (U. Md., Ent. Dept.).

GREENBUG (Schizaphis graminum) - NEBRASKA - Light in Saunders County wheat. (Keith). Surveys negative in panhandle area. (Andersen). KANSAS - Trace numbers, 1-5 per sweep, in few south-central and southwest area wheat fields. (Simpson).

POTATO LEAFHOPPER (Empoasca fabae) - INDIANA - First adults of season collected on alfalfa in southwest and south-central districts May 1. (Huber). ILLINOIS - First adults of season found in south-southeast and southeast districts; 1 per 5 to 25 sweeps. (Ill. Ins. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MICHIGAN - This vector of aster yellows collected in sweepings for second week. Protection recommended for such crops as celery, lettuce, and carrots as plants emerge. (Dowdy).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Becoming more numerous and more generally distributed in alfalfa in most southern counties. Populations may increase rapidly as weather becomes more favorable. (N. M. Coop. Rpt.). KANSAS - None found in alfalfa in central, south-central, and southwest districts. (Simpson). NEBRASKA - Trace, 2-4 per 100 sweeps, on alfalfa in Saunders and Lancaster Counties. (Keith).

TOBACCO BUDWORM (Heliothis virescens) - FLORIDA - Continues severe on flue-cured tobacco in Hamilton County (Strayer); serious on flue-cured tobacco at Live Oak, Suwannee County (Lundy). ALABAMA - Egg laying and first instars heavy in 6-acres of young tobacco at Red Level, Covington County. Few adults resting on plants. Older larvae controlled in another field of older tobacco. (McQueen). GEORGIA - Light to heavy across the Tobacco Belt. (French).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Approximately 55 percent pupation of overwintering borers in south Kent and Sussex Counties. First adult of season May 1 in blacklight trap in Sussex County. (Burbutis). MARYLAND - Pupation nearly complete on Eastern Shore, but no moths taken in blacklight traps. (U. Md., Ent. Dept.). ILLINOIS - Pupation 50 percent in Pulaski County. (Ill. Ins. Rpt.). MINNESOTA - Woodpecker predation of overwintering larvae high in Carver County. (Minn. Ins. Rpt.). NORTH DAKOTA - Bird predation evident in unharvested corn field near Fargo, Cass County. Fall population reduced 40 percent. (Brandvik).

BLACK CUTWORM (Agrotis ipsilon) - SOUTH CAROLINA - Damage in Hampton County. (Nettles et al.). MARYLAND - Adults averaged 7 per night in blacklight trap at Centreville, Queen Annes County. (U. Md., Ent. Dept.).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Isolated infestations of larvae reaching full growth in a corn field in Houston County. (McQueen).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSISSIPPI - Adult emergence underway in Oktibbeha County. (Davis).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MISSOURI - Light, 1-6 beetles per 10 plants, on seedling corn in southwest area. (Munson). NEW JERSEY - Controls applied to sweet corn in Burlington County. Higher than average winter temperatures indicate greater numbers this spring than last. (Ins.-Dis. Newsltr.). NEW YORK - Numerous on sweet corn in Ulster County during dry, cool weather. (N. Y. Wkly. Rpt., May 1).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - MISSISSIPPI - Larvae severely damaged 150 acres of young corn in Warren County. Entire acreage plowed and replanted. (Young, Apr. 28).

A CERAMBYCID BEETLE (Derobrachus brevicollis) - GEORGIA - Heavy, damaged corn following Bahia grass in Baker County. (Morgan).

BILLBUGS - GEORGIA - Heavily damaged seedling corn in Telfair County. (McKinnon). SOUTH CAROLINA - Some adult damage on young corn in Clarendon County; scattered feeding in lower part of State. (Nettles et al.).

SEED-CORN MAGGOT (Hylemya platura) - NEW JERSEY - Adults numerous on 4 sticky boards at Cedarville April 26 and May 3. (Ins.-Dis. Newsltr.).

SMALL GRAINS

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Light, 1-3 per 10 sweeps, in several wheat fields in 3 south-central and southwest counties. (Simpson).

PALE WESTERN CUTWORM (Agrotis orthogonia) - KANSAS - Ranged 4-8 per square foot of wheat in Morton and Stanton Counties; damage extensive in some fields. Previous numbers of 4-10 per square foot continue in Finney, Haskell, Hamilton, and Scott Counties. (Simpson). NEBRASKA - Decreased on small grains in northwest area. (Andersen).

ENGLISH GRAIN APHID (Macrosiphum avenae) - KANSAS - Occasional aphid on wheat in south-central and southwest districts. (Simpson). NEBRASKA - Light on wheat in Saunders County. (Keith). WISCONSIN - Varied 8-35 per 50 sweeps in rye in central and southwestern counties. (Wis. Ins. Sur.). OHIO - Averaged 7 per sweep in

Adams County wheat. Growing conditions favorable in southern counties; some wheat heading. (Rose). MARYLAND - Common, causing some injury to bottom leaves of barley and wheat at Easton, Talbot County. (U. Md., Ent. Dept.).

APHIDS - CALIFORNIA - Several species moderate to heavy on barley in Fresno County. Barley showing some stress from excess moisture and aphid infestations. (Cal. Coop. Rpt.). VIRGINIA - Colonies on top leaves of heading barley in King George County. (Isakson, Hall). MARYLAND - Rhopalosiphum padi collected May 2 from barley and wheat at Easton, Talbot County. Det. by L. M. Russell. (U. Md., Ent. Dept.).

THRIPS - ARKANSAS - Very light on wheat in Conway and Jefferson Counties. (Ark. Ins. Sur.).

HESSIAN FLY (Mayetiola destructor) - VIRGINIA - Puparia medium in volunteer wheat in Pittsylvania County. (Isakson, Blair).

WHEAT CURL MITE (Aceria tulipae) - NEBRASKA - Symptoms of wheat streak mosaic on wheat in Kimball, Cheyenne, and Scotts Bluff Counties. (Andersen).

BROWN WHEAT MITE (Petrobia latens) - NEBRASKA - Declining in panhandle area. (Andersen).

TURF, PASTURES, RANGELAND

GREEN JUNE BEETLE (Cotinis nitida) - OKLAHOMA - Larvae damaging lawns in Payne County. (Okla. Coop. Sur.). SOUTH CAROLINA - Larvae caused moderate loss of stand of Coastal Bermuda grass in Hampton County. (Nettles et al., May 3).

MAY BEETLES (Phyllophaga spp.) - KANSAS - White grubs seriously damaged bromegrass in Mitchell, Cloud, and Harvey Counties. (Gates). NORTH DAKOTA - Larvae ranged up to 4 per square foot in grassy field margins in eastern Richland County. (Brandvik). MICHIGAN - First adult activity in Ingham County May 3. (Hoffman). NEW YORK - Brood C beetles should be in flight this year. Readily found in diggings; may be heaviest in several years. Brood C heaviest and most important of three broods occurring in State. P. anxia most common of 23 species. Heavy flight anticipated. (N. Y. Wkly. Rpt., May 1).

BROWN WHEAT MITE (Petrobia latens) - COLORADO - Averaged 100 per plant on bromegrass and orchard grass in irrigated pasture near Longmont, Boulder County; causing extensive damage. Controls applied. (Hantsbarger).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSOURI - Very low; collected in Dallas, Howard, Laclede, McDonald, Morgan, and Webster Counties for new county records. (Munson). NEBRASKA - Larvae increasing in Dawson County, but still low; 0-4 per 100 sweeps, averaged 1. (Manglitz). KANSAS - As high as 175 larvae per 10 sweeps in Finney County field. Considerable feeding damage noted. Alfalfa being cut in this area. Larvae, 1-7 per 10 sweeps, collected in following 6 counties comprise new county records: Kiowa, Ford, Meade, Stanton, Grant, and Hodgeman Counties. (Simpson). ARKANSAS - Survey negative in Conway County. (Ark. Ins. Sur.). ILLINOIS - Causing much damage in southern third of State; most fields in area treated. New adults emerging in this area, but larval counts remain high; egg hatch continues. Larvae per sweep averaged 39 in the southwest, 24 in southeast, 21 in east-southeast, and 6 in west-southwest. (Ill. Ins. Rpt.). INDIANA - Adult emergence well underway in southern third; all stages present and pupae range as high as 121 per square foot on untreated alfalfa. (Huber). WISCONSIN - Adult collected in Kenosha County indicates species successfully overwintered in State. (Wis. Ins. Sur.). MICHIGAN - Adults per 1,000 sweeps April 28: 1 in Wayne County field; 5 in Washtenaw County field. Both new county records. (Behnke). NEW YORK - Two adults collected on alfalfa in Cattaraugus County April 20. One adult collected April 26 near Hannibal, Cayuga County, for first activity in north-central area. No activity in Ulster County. (N. Y. Wkly. Rpt., May 1). OHIO - Remains of primary concern. Damage to alfalfa by large larval populations continues to increase in southern, central, and eastern counties. Very little alfalfa being raised in southeast area because of large, established populations. Alfalfa cannot be grown in this area or in many southwestern, central, and east-central counties without application of controls. Alfalfa appears "frosted" in southern counties. Larvae over 100 per sweep in one Adams County field and crop 50-70 percent destroyed. Larvae 27 per sweep in Franklin County field and crop 10-20 percent damaged. Noted on clover in Lawrence and Adams Counties; larvae ranged 1-5 per sweep. (Rose). Destructive populations developing more slowly in Wayne and Ashland Counties, but damage apparent and increasing. Percentage of damaged tips ranged 0-50 in numerous fields with most fields having 0-10 percent of tips damaged. Alfalfa 6-14 inches tall in these counties. (Glass).

NEW JERSEY - Marked increase of larvae on alfalfa due to warm weather. Most fields in Cumberland, Salem, and Gloucester Counties, show 50-75 percent injury. By May 2, 40-140 larvae per 25 tips injured 64-92 percent of tips in 3 fields. Organic phosphates and a carbamate gave good control. Treated fields in Cumberland and Gloucester Counties contained, respectively, 135 and 25 larvae per 100 sweeps. Untreated fields in other areas contained 1,000-5,000 larvae per 100 sweeps. Population of 7,000 larvae per 100 sweeps in Cumberland County greater than last year's population. A few adults present in some untreated fields. Egg masses ranged 1-3 per 10 stems. Pupation beginning in 1 field in Gloucester County. (Ins.-Dis. Newsltr.). DELAWARE - Heavy feeding injury in Kent and Sussex Counties. (Burbutis). MARYLAND - Larvae averaged over 50 per sweep on untreated alfalfa in Queen Annes County. Damage heavy to severe on untreated alfalfa in Carroll and Frederick Counties. Eggs found May 5 in stems of treated alfalfa at Fairland, Montgomery County. (U. Md., Ent. Dept.). VIRGINIA - Larvae 10 per sweep in 10-12 inch alfalfa in Roanoke County; pupation underway; much foliar damage apparent. (Isakson). SOUTH CAROLINA - Still numerous. Adults, larvae, and pupae present. Damage expected to continue. (Thompson). NEVADA - Large numbers of eggs present in most alfalfa in Fallon and Stillwater areas, Churchill County, and Mason Valley, Lyon County. Few first instars present in some fields in Churchill County. In several Churchill County fields, few larvae ranging from first instar to two-thirds grown, indicate some egg laying occurred during warm period in February. Egg laying continues with major hatch still to come. (Arnett et al.). Adult activity low in Eureka and White Pine Counties due to cool weather. (Lauderdale). IDAHO - Averaged 1 adult per square foot in field of alfalfa at Caldwell, Canyon County, April 17. No eggs found; feeding damage present. Averaged 1 and 3 adults per square foot in 2 experimental fields at Aberdeen, Bingham County, April 19. (Bishop).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larvae, some diseased, averaged 5 per square foot on red clover near Centreville, Queen Annes County. (U. Md., Ent. Dept.). KANSAS - Very few larvae in examined alfalfa. Decreased substantially during last 3 weeks. (Simpson).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - OHIO - Adults on clover in southern counties; ranged 1-3 per sweep in 2 fields in Lawrence and Adams Counties. Clover 15-18 inches high. (Rose).

WEEVILS (Hypera spp.) - CALIFORNIA - Probably H. brunneipennis, damaging 80 acres of alfalfa at Rubidoux, Riverside County. This and Hypera spp. on alfalfa and burclover heavy at Live Oak, Sutter County, and medium at Brooks, Yolo County. H. brunneipennis and H. postica complex occurs in Sutter County. (Cal. Coop. Rpt.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - MISSOURI - Adults in most alfalfa checked in southwest and central areas. Counts ranged 0.5-20 per 10 sweeps. (Munson).

PEA APHID (Acyrthosiphon pisum) - WASHINGTON - Extremely abundant on new growth alfalfa in Walla Walla County; stunting severe. Considerable acreage treated during past 2 weeks. (Johansen) - CALIFORNIA - Heavy on 15 acres of alfalfa at Live Oak, Sutter County. (Cal. Coop. Rpt.). NEVADA - Populations and damage continue heavy on alfalfa in Mason and Smith Valleys, Lyon County, especially in latter area. In many fields, infestations confined to limited areas, but spreading as infested plants dry up. Cool, damp, and windy weather has hampered controls. (Adams et al.). In Fallon and Stillwater areas, Churchill County, populations very light (1-5 per sweep) where present. No aphids were found in many fields. (Bechtel et al.). UTAH - Present in alfalfa at North Ogden, Weber County. (Knowlton). NEW MEXICO - Appears to be increasing slowly in most alfalfa in Dona Ana, Socorro, and Chaves Counties. (Elson, Heninger, Mathews). ARKANSAS - Populations decreased and now very light in alfalfa in Conway County. (Ark. Ins. Sur.). KANSAS - Low to moderate in central, south-central, and southwest districts. Ranged 250 per 10 sweeps in Dickinson County to 20 per 10 sweeps in Seward, Stevens, and Morton Counties. Generally lowest in southwest. Increasing predators and parasites reduced counts over the last month in these areas. (Simpson, Redding). NEBRASKA - Increasing slowly in Dawson County; ranged 0-15 per 50 sweeps, averaged 5.5. (Manglitz). Ranged 242-774 per 50 sweeps, averaged 450 in Saunders and Lancaster Counties. (Keith). MISSOURI - Counts in the southwestern area of the State ranged from 20 to 650 per 10 sweeps and up to 1,000 per 10 sweeps in the central area. (Munson). WISCONSIN - Ranged 1-40 per sweep in alfalfa (average 5) in central and southwestern counties. Parasitism in the fields surveyed was as high as 10 percent. (Wis. Ins. Sur.). ILLINOIS - Decreasing rapidly due to predators. (Ill. Ins. Rpt.). INDIANA - Declining in south with increasing parasitism (10-30 percent) and increased lady beetles and damsel bugs. A. pisum, averaged 26 per sweep (range 6-131 per sweep), in central district with no appreciable parasitism present. (Huber). MISSISSIPPI - Moderate to heavy on vetch in Oktibbeha County. (Dinkins). VIRGINIA - Averaged 15 per sweep on alfalfa in Roanoke County; alates present. (Isakson).

CLOVER APHID (Nearctaphis bakeri) - WASHINGTON - All stages moderate on red clover on 25-acre field April 25 at Prosser, Benton County. (Klostermeyer, May 1).

MEADOW SPITTLEBUG (Philaenus spumarius) - VIRGINIA - Spittle masses present in most alfalfa at Roanoke; numbers light. (Isakson). INDIANA - Nymphs ranged 2-12 per sweep in south-central district alfalfa. (Huber). ILLINOIS - Present in clover in east-southeast district with 1-10 percent of stems infested. (Ill. Ins. Rpt.). WISCONSIN - Nymphs scarce except in extreme southern area and in few isolated, advanced areas. Counts varied 0-12 per 10 alfalfa stems. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Small increase noted in alfalfa in Yuma, Graham, and Maricopa Counties; averaged 15 per 100 sweeps. (Ariz. Coop. Sur.). UTAH - Moderate on alfalfa at St. George-Santa Clara area of Washington County. (Knowlton).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - First adults of season on alfalfa in Sussex County. (Burbutis). MISSOURI - Ranged 1-30 per 10 sweeps in most fields checked in southwest area. (Munson).

LYGUS BUGS (Lygus spp.) - ARIZONA - Adults increasing in Graham County alfalfa; averaged 50 per 100 sweeps. Nymphs increasing in Yuma County; averaged 20 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Adults per 25 sweeps of alfalfa averaged 1-2 in Socorro County and about 4 near Mesilla Park, Dona Ana County. (Heninger, Kloepfer, Elson). KANSAS - Continues low, 5-10 per 10 sweeps, but nymphs increasing. (Simpson).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - Ranged 0-5 small larvae per 10 sweeps of alfalfa in southwest area. (Munson).

THRIPS - NEW MEXICO - Populations, mostly Frankliniella spp., light in alfalfa in Chaves and Socorro Counties. (Mathews, Kloepfer, Heninger). ARKANSAS - Unspecified species very light in alfalfa in Conway County. (Ark. Ins. Sur.).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Locally light in alfalfa in Fallon and Stillwater areas, Churchill County. (Bechtel et al.).

PEANUTS

A BURROWING STINK BUG (Pangaeus bilineatus) - ALABAMA - Numerous, as high as 25 per square foot, under old vines in Geneva County field April 20. Considerable damage last year in several southeast counties. (Todd).

THRIPS - GEORGIA - Light to medium in Early County. (French).

SPIDER MITES - GEORGIA - Caused light damage in Early County. (French).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Total of 15 weevils collected on 12 flight screens installed March 29 in Waco area. First weevil collected April 10. In 1966, 7 weevils collected during this period. Averaged 45 per acre. Weevils in 4 of 23 untreated fields; maximum 312 per acre. Absent in 6 systemically treated fields. (Cowan et al.). ALABAMA - Ranged 0-270 per acre on 2 to 6-leaf stage cotton at 5 central and southern counties. Very high numbers survived in suitable hibernation quarters. (McQueen).

BOLLWORMS (Heliothis spp.) - TEXAS - Eggs and/or larvae on numerous wild hosts in Waco area. Of larvae reared to fifth stage, 157 determined as H. zea, and 12 H. virescens. Two larvae collected from cotton. (Cowan et al.). ALABAMA - Eggs light on young cotton in 2 fields. (McQueen).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Light in Litchfield area, Maricopa County. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ALABAMA - Few small larvae feeding on leaves in Monroe and Covington Counties. Predators and parasites usually effective. (McQueen).

THRIPS - ARIZONA - Frankliniella occidentalis light to moderate on treated and untreated cotton in Yuma, Maricopa, and Pinal Counties. (Ariz. Coop. Sur.). TEXAS - Unspecified thrips heavy in 1, medium in 1, and light in 14 of 23 untreated fields in Waco area. Light in 1 of 6 systemically treated fields. (Cowan et al.). ARKANSAS - Averaged less than 1 per plant in Jefferson County. (Ark. Ins. Sur.). MISSISSIPPI - Averaged 2 per plant in 20 fields checked in Washington County. In 17 fields checked in Montgomery County, thrips ranged none to light in 11 fields and absent in 6 fields. (Young). ALABAMA - Frankliniella fusca light to heavy in all fields except where systemic insecticides applied prior to planting. (McQueen).

COTTON APHID (Aphis gossypii) - ARIZONA - Medium to heavy infestations prevalent on seedling cotton in many areas of Yuma and Maricopa Counties. Some controls applied. (Ariz. Coop. Sur.). ALABAMA - Present in most fields, but heaviest in Monroe County. (McQueen).

APHIDS - TEXAS - Light in 5 of 23 untreated fields and none found in 6 systemically treated fields in Waco area. (Cowan et al.).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Averaged 0.2 per 100 linear feet of row in 23 untreated fields in Waco area; ranged 0-2. None found in 6 systemically treated fields. (Cowan et al.).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - ALABAMA - Lightly mottled 2-leaf cotton at field border in Henry County. Not evident in central and south area. (McQueen).

TOBACCO

FLEA BEETLES - SOUTH CAROLINA - Heavy in most areas; problem of reinfestations. (Nettles et al., May 3).

CUTWORMS - GEORGIA - Light to moderate on tobacco in Colquitt and Mitchell Counties. (Miles).

SUGARBEETS

PALE-STRIPED FLEA BEETLE (Systena blanda) - NEBRASKA - Destroyed 20 acres of new planting in Scotts Bluff County. (Andersen).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Adults emerging near beet dump at Cloverly, Weld County. No adults observed in Ault, Eaton, Windsor, Fort Collins, Galeton, or Wellington areas of Weld and Larimer Counties. (Robertson, Alldredge).

SPIDER MITES (Tetranychus spp.) - ARIZONA - Moderate to heavy on some sugarbeets in areas of Maricopa County. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW JERSEY - First of season feeding on tomato transplants near Auburn, Salem County. (Ins.-Dis. Newsltr.). OKLAHOMA - Larvae ranged 20-75 per plant on potatoes in Payne County home garden. Larvae and adults damaging nearby tomato plants. (Okla. Coop. Sur.).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - First adults of season on very young potatoes in eastern Kent and Sussex Counties. (Burbutis).

TOMATO FRUITWORM (Heliothis zea) - ALABAMA - Numerous eggs on new growth and blossoms of commercial tomatoes on 2 farms in Houston County. Since half of eggs turning dark brown, hatch expected on May 6-8. (White et al.).

POTATO TUBERWORM (Phthorimaea operculella) - ALABAMA - Large larvae extremely heavy, 3-10 per plant; leaving blotch mines on potato leaves to pupate in 25-acre field planted to potatoes again this year in south Baldwin County. Extreme drought for the last 45 days. First-generation moth emergence within 10 days to 2 weeks; larvae may infest tubers of late-planted potatoes. (McQueen).

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Larvae near full growth; light on potatoes in Baldwin County. (McKenzie et al.).

A LEAF MINER FLY (Liriomyza sp.) - ALABAMA - Extremely heavy on early transplant tomatoes beginning to bloom on Chandler Mountain in St. Clair County. Controls necessary. (Jackson, Burton). Tomatoes occasionally damaged in Houston County. (White). Ranged 5-25 on most commercial potato foliage in Baldwin County. (Turner et al.).

A SPIDER MITE (Tetranychus marianae) - CALIFORNIA - Heavy on wild nightshade in Brea, Orange County. (Cal. Coop. Rpt.).

BEANS AND PEAS

COWPEA CURCULIO (*Chalcodermus aeneus*) - FLORIDA - Difficult to control on beans at Plant City, Hillsborough County, past 2 weeks. (Brogdon).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - ALABAMA - Isolated broods of first-generation larvae on snap beans in Baldwin County; light feeding by overwintered adults noted on beans in Houston County. (White et al.).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - SOUTH CAROLINA - Heavy leaf damage at Clemson. (Nettles et al., May 3).

NOCTUID MOTHS (*Heliothis* spp.) - ALABAMA - Numerous large larvae destroyed sale value of snap beans on a 6-acre field in Baldwin County. (McKenzie et al.).

PEA APHID (*Acyrthosiphon pisum*) - MISSISSIPPI - Heavy on peas in Calhoun County garden. Controls necessary. (Cochran). DELAWARE - Averaging 2-7 per 10 sweeps in most pea fields. (Burbutis).

COLE CROPS

CABBAGE LOOPER (*Trichoplusia ni*) - FLORIDA - Very severe in several cabbage fields at Sanford, Seminole County. Several growers reported difficulty in control of larvae with any insecticide available. Unsprayed experimental plots at Sanford show population declining; many dead larvae found. (Greene). ALABAMA - Large larvae extremely heavy and damaging to a 6-acre cabbage field in Mobile County. (Vickery).

DIAMONDBACK MOTH (*Plutella xylostella*) - FLORIDA - Larvae severely damaged late setting of cabbage at Sanford, Seminole County. Populations higher than any time during past 7 months. (Greene).

CABBAGE MAGGOT (*Hylemya brassicae*) - WASHINGTON - Adults appeared April 24 in large numbers in old turnip field at Yakima, Yakima County. (Landis, May 1).

CABBAGE SEEDPOD WEEVIL (*Ceutorhynchus assimilis*) - WASHINGTON - Adults appearing on blossoms of wild mustards at North Avon, Skagit County. No damage noted on cabbage or turnip seed. (Eide, May 1).

CUCURBITS

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Damaging and requiring controls on cantaloups in Yuma County. (Ariz. Coop. Sur.).

SQUASH BUG (*Anasa tristis*) - OKLAHOMA - Single adult noted on squash in Payne County. (Okla. Coop. Sur.).

GENERAL VEGETABLES

BLACK CUTWORM (*Agrotis ipsilon*) - NEW JERSEY - First moths of season collected near New Brunswick on April 29. (Ins.-Dis. Newsltr.). DELAWARE - Adults abundant in blacklight trap collections in Sussex County. (Burbutis).

CUTWORMS - MASSACHUSETTS - Expected to be a problem again this year on vegetables due to large numbers that occurred last year and to favorable weather conditions. (Crop Pest Cont. Mess., May 1).

ASPARAGUS BEETLE (*Crioceris asparagi*) - NEW JERSEY - Slight injury to asparagus near Pedricktown on May 2. (Ins.-Dis. Newsltr.).

THRIPS - NEW MEXICO - Light on onions in Dona Ana County. (Elson).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - OHIO - First moths of season emerged in Wayne County. (Forsythe). INDIANA - Total of 77 adults have emerged from overwintering cage. About 20 percent of overwintering generation emerged; 2 adults caught in bait pans during latter part of week. (Dolphin, May 1).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Adults in bait traps declined from 9 to 1. (Dolphin, May 1). NEW JERSEY - None in traps in 2 orchards in Gloucester County on May 1 and 4. (Ins.-Dis. Newsltr.).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - CONNECTICUT - Increased at Storrs. (Savos, May 3).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Only 3 adults caught in bait pans; majority immature. (Dolphin, May 1). NEW YORK - Emerging April 29 in Monroe area, Orange County, and Orleans County. (N. Y. Wkly. Rpt., May 1).

A NOCTUID MOTH (Amathes badinodis) - OHIO - Damage first noted April 23. Sixth instar damage moderate in Guernsey County apple orchard; larvae ranged 40-200 per tree; foliage damaged up to 12 feet from ground surface. This is second consecutive year of economic importance in area. (Rings). MICHIGAN - Unspecified cutworm active on peaches in southwest area. (Wallner).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - INDIANA - Larvae full-grown and pupating at Vincennes. (Dolphin, May 1).

LESSER PEACH TREE BORER (Synanthedon americanum) - INDIANA - Declined from 50 to 33 males caught in live female traps in orchard at Vincennes, probably due to cool weather. (Dolphin, May 1).

APHIDS - UTAH - Myzus persicae nymphs noted on peach leaves and in blossoms at North Ogden, Weber County, and at Perry, Box Elder County. (Knowlton, Apr. 28). IDAHO - M. persicae infesting 2 percent of leaves in 1 of 2 commercial peach orchards at Caldwell, Canyon County. (Bishop). NEW YORK - Rhopalosiphum fitchii on apple in Clinton County and Dysaphis plantaginea observed last period on apple in Ulster, Columbia, and Wayne Counties. (N. Y. Wkly. Rpt., May 1). CONNECTICUT - D. plantaginea and Aphis pomi increasing at Storrs. (Savos, May 3). NEW JERSEY - First A. pomi of season curling young leaves in Burlington and Gloucester County orchards. (Ins.-Dis. Newsltr.).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Eggs hatching at Storrs. (Savos, May 3). MASSACHUSETTS - Egg laying continues on pear buds in Amherst area; large numbers of eggs present but no hatch noted. (Crop Pest Cont. Mess.).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on peach trees in Vista, San Diego County. (Cal. Coop. Rpt.).

APPLE LEAFHOPPER (Empoasca maligna) - INDIANA - First adults of season observed at Vincennes. (Dolphin, May 1).

PLUM CURCULIO (Conotrachelus nenuphar) - INDIANA - Feeding punctures noted on apples at Vincennes. (Dolphin, May 1). NEW JERSEY - None in 2 orchards checked in Gloucester County. (Ins.-Dis. Newsltr.).

ROSE CHAFER (Macrodactylus subspinosus) - ALABAMA - Unusual and heavy infestation on 3 pecan trees at Albertville, Marshall County; adults clinging to and feeding heavily on male catkins and to a lesser extent the leaves. Control necessary. A few adults on roses nearby. (Alverson).

SHOT-HOLE BORER (Scolytus rugulosus) - GEORGIA - First generation adults heavy on peach limbs that died this spring, Peach County. (Jacklin).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Averaged 0.72 mobile forms per leaf in commercial orchard at Vincennes. Cool, rainy period probably reduced numbers slightly from previous week. (Dolphin, May 1). NEW JERSEY - Overwintering eggs hatching late in Burlington, Camden, Atlantic, Gloucester, and Cumberland Counties. (Ins.-Dis. Newsltr.). NEW YORK - Hatched April 28 with 3-4 open leaves on apple buds in Ulster County. (N. Y. Wkly. Rpt.). CONNECTICUT - Overwintering eggs hatching in substantial numbers at Storrs. (Savos, May 3). MASSACHUSETTS - Overwintering eggs hatched April 30 in Amherst area. With continued warm weather, hatching should increase in "early" orchards. (Crop Pest Cont. Mess., May 1).

CITRUS

Citrus Insect Situation in Florida - End of April - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 74 percent of groves (norm 58 percent); 63 percent economic (norm 34 percent). Population advanced to new record high for April and will continue in high range. Highest districts west, south, central, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 74 percent of groves (norm 43 percent); 51 percent economic (norm 19 percent). Populations also increased to record high for April and has entered high range. Further increase expected as mites build up on new leaves. Highest districts west, north, south, and central. CITRUS RED MITE (Panonychus citri) infested 63 percent of groves (norm 47 percent); 31 percent economic (norm 17 percent). Continues more abundant than average. Statewide population will remain moderate but with some heavy infestations in all districts. Highest districts north, west, and south. GLOVER SCALE (Lepidosaphes gloverii) infested 87 percent of groves; 27 percent economic. Statewide population above average and will increase further into high range. Highest districts east, central, and south. PURPLE SCALE (L. beckii) infested 81 percent of groves; 15 percent economic. Continues in normal abundance with very few heavy infestations. Highest district central. YELLOW SCALE (Aonidiella citrina) infested 74 percent of groves; 2 percent economic. Population will increase through June but infestations will be much lighter than in recent years. Highest district west. CHAFF SCALE (Parlatoria pergandii) infested 60 percent of groves; 6 percent economic. Gradual increase expected, but population will remain below normal and in low to moderate range. Highest district east. BLACK SCALE (Saissetia oleae) infested 21 percent of groves; 6 percent economic. Population below average of recent years and will remain low despite gradual increase expected late in May. AN ARMORED SCALE (Unaspis citri) is increasing in infested groves. WHITEFLY adults reached spring population peak in early April. Eggs now present in above normal numbers. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) and MEALYBUGS are scarce and of no concern at this time. (W. A. Simanton, (Citrus Expt. Sta., Lake Alfred)).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Numerous light infestations on citrus in Yuma County. All populations small. Vedalia (Rodolia cardinalis) numerous and active. (Ariz. Coop. Sur.).

COWPEA APHID (Aphis craccivora) - ARIZONA - Infestations continue on young citrus terminals in Yuma County. (Ariz. Coop. Sur.).

EUROPEAN EARWIG (Forficula auricularia) - CALIFORNIA - Heavy on orange trees at Oroville, Butte County. Wet weather driving earwigs onto plants and trees. Adults occurring under tree wrappings; some bud and fruit damage resulting. (Cal. Coop. Rpt.).

SMALL FRUITS

CUTWORMS - MICHIGAN - Active on grapes in area. (Wallner).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Several colonies of first instars observed on leaves of Lake Emerald grape at Gainesville, Alachua County. (Mead).

A NOCTUID MOTH (Euxoa sp.) - CALIFORNIA - Larvae medium on 50 acres of grapevines at Kerman, Fresno County. (Cal. Coop. Rpt.).

RASPBERRY CROWN BORER (Bembecia marginata) - COLORADO - Average of 1 larva per plant causing severe damage to raspberry canes at Steamboat Springs, Routt County. Controls applied. (Hantsbarger).

STRAWBERRY WEEVIL (Anthonomus signatus) - NEW JERSEY - Still damaging in fields controlled improperly. (Ins.-Dis. Newsltr.). MARYLAND - Adults averaged 3 per 50 sweeps on strawberries at Glenndale, Prince Georges County. (U. Md., Ent. Dept.).

A SAP BEETLE (Stelidota geminata) - MICHIGAN - Acitivity slow on strawberries. (Wooley).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - ALABAMA - Probably this species heavy; difficult to control in several strawberry fields in Cullman County. Drought in this area favorable for a buildup. (Pinkston, Ledbetter).

STRAWBERRY APHID (Chaetosiphon fragaefolii) - WASHINGTON - Averaged 5 per leaf on strawberries; 3-6 times heavier than normal for this date in Vancouver, Clark County. (Shanks).

ORNAMENTALS

CONIFER APHIDS (Cinara spp.) - CALIFORNIA - Nymphs and adults heavy on arborvitae at Fairfield. Weather favorable for heavy buildup. (Cal. Coop. Rpt.). OKLAHOMA - C. tujafilina moderate on arborvitae in Hennessey, Kingfisher County. (Okla. Coop. Rpt.).

APHIDS - CALIFORNIA - Amphorophora nervata, Myzus persicae and Macrosiphum euphorbiae medium on rose nursery stock at Fresno, Fresno County. (Cal. Coop. Rpt.).

ARMORED SCALES - CALIFORNIA - Aspidiotus nerii and A. camelliae heavy on pachysandra nursery stock at Napa, Napa County. (Cal. Coop. Rpt.)

EUROPEAN FRUIT LECANIUM (Lecanium corni) - OKLAHOMA - Heavy and damaging redbud in Woodward County. (Okla. Coop. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - INDIANA - In south districts, full-grown larvae leaving wild cherry to pupate. Middle instars leaving defoliated wild cherry to infest cultivated shrubs and ornamentals. (Matthew, Huber). NEW JERSEY - Active on wild cherry in southern counties. (Ins.-Dis. Newsltr.).

JUNIPER WEBWORM (Dichomeris marginella) - MARYLAND - Heavy on juniper at Holland Point, Anne Arundle County. (U. Md., Ent. Dept.).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Larvae heavy, feeding on trees and shrubs where overwintered eggs remained in old bag cases. (McQueen).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - MARYLAND - Adults emerged May 4 from boxwood at College Park, Prince Georges County. (U. Md., Ent. Dept.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Adults emerged May 1 from American holly at College Park, Prince Georges County. (U. Md., Ent. Dept.).

FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - VIRGINIA - Tents conspicuous on wild cherry and other host plants; larval defoliation medium in southwest area. (Isakson). OHIO - Larval development about complete in south area; no pupae observed; larger larvae expected to leave trees within 7 days. (Rose). Reported on rose bushes in Franklin County (Spilker); also reported on peach (Soine).

GREAT BASIN TENT CATERPILLAR (*Malacosoma fragile*) - UTAH - Larvae defoliated 20-80 percent of cottonwood trees in the Shivwit Indian Reservation area of Washington County. Defoliation increased along Virgin River from Santa Clara to Springdale. (Dorst, Knowlton).

A GEOMETRID MOTH (*Nepytia semiclusaria*) - FLORIDA - Adults taken in blacklight traps in pine forest in northeast Alachua County. (Hetrick).

BAGWORM (*Thyridopteryx ephemeraeformis*) - ARKANSAS - Small larvae active on shade trees in White County. (Ark. Ins. Sur.).

MOURNING-CLOAK BUTTERFLY (*Nymphalis antiopa*) - NEVADA - Larvae continue to infest elm and poplar in Las Vegas area, Clark County. (Nichols).

FRUIT-TREE LEAF ROLLER (*Archips argyrospilus*) - CALIFORNIA - Larvae medium on oak foliage at La Canada, Los Angeles County. (Cal. Coop. Rpt.).

DOUGLAS-FIR TWIG WEEVIL (*Cylindrocopturus furnissi*) - WASHINGTON - Overwintering adults of first generation and larvae and prepupae of partial second generations severely damaging Douglas-fir at Shelton, Mason County; apparently increasing for third or fourth year. Very damaging in certain areas of natural stand Christmas-tree farms. Most severe in drought areas. (Saunders, May 1).

DEODAR WEEVIL (*Pissodes nemorensis*) - MARYLAND - Larvae heavy in red pines at Norbeck, Montgomery County. (U. Md., Ent. Dept.).

WHITE-PINE CONE BEETLE (*Conophthorus coniperda*) - OHIO - Approximately 5 percent of second-year cones infested with 1-5 beetles in white pine seed-production area in Mohican State Forest, Ashland County. (Schilling).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - IOWA - Pupation nearly completed in south and central areas; small numbers of inactive adults in emergence traps. Pupation about 100 percent at Fairfield and Shenandoah on May 3. (Iowa Ins. Sur.).

COTTONWOOD LEAF BEETLES (*Chrysomela scripta* complex) - ALABAMA - Larvae extremely heavy on new growth, 50-100 per willow bush on several hundred bushes in Lee County. (McQueen).

MAY BEETLES (*Phyllophaga* spp.) - ARKANSAS - Very heavy feeding signs observed in timber in Pope and Drew Counties. (Ark. Ins. Sur.).

EASTERN SPRUCE GALL APHID (*Adelges abietis*) - OHIO - Immature females feeding at bases of buds of Norway and white spruce trees in mixed block of 1,000 trees in Lake County. (Campbell). MARYLAND - Damaged spruce in Washington County and Baltimore City. (U. Md., Ent. Dept.).

EUROPEAN PINE SAWFLY (*Neodiprion sertifer*) - MICHIGAN - As of April 29, 75 percent of eggs hatched on red and Scotch pines with southern exposure in Livingston County. No hatch noted May 1 in shaded areas of Ingham County. (Wallner).

MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 2 cases reported in the U. S. April 30-May 6 as follows: TEXAS - La Salle 1, Medina 1. Total of 30 cases reported in portion of Barrier Zone in Republic of Mexico April 23-29 as follows: Territorio sur de Baja California 1, Sonora 10, Chihuahua 2, Nuevo Leon 2, Tamaulipas 13. Nine cases reported in Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released April 30-May 6: Texas 25,668,000, California 400,000, Mexico 96,328,000. (Anim. Health Div.).

FACE FLY (Musca autumnalis) - IDAHO - Hibernating adults collected at Clark Fork, Bonner County, May 3 (Davis, Ross), and in Clearwater area, Idaho County, May 4 (Gephart). UTAH - Annoying horses and cattle in North Ogden area of Weber County. (Knowlton). MICHIGAN - First adult activity April 28 around pastured cattle in Shiawassee and Livingston Counties. Up to 10 per animal on face and back (around exudate from grub openings). (Dowdy).

HOUSE FLY (Musca domestica) - GEORGIA - Causing concern in residential areas around caged layer operations. (Nolan).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Moderate on cattle in Choctaw County, light in Payne County. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - ALABAMA - Adults running cattle. (Odom).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Average counts per animal on cattle by county as follows: Montgomery 225 on 250 head; Tates 45 on 150 head; Adams 75 on 200 head; and Pike 25 on 60 head. (Dinkins). OKLAHOMA - Moderate on cattle in Mayes, Cleveland, and Choctaw Counties; light in Payne County. (Okla. Coop. Sur.).

BLACK FLIES - MICHIGAN - Adults annoying pastured cattle in Shiawassee County. (Dowdy). CONNECTICUT - Continue annoying throughout most of State. (Savos).

MOSQUITOES - MINNESOTA - Total of 1,519 larval collections made week ending April 29. Aedes excrucians, A. fitchii, and A. stimulans dominant; 108 samples contianed Culiseta inornata. (Minn. Ins. Rpt.). IOWA - Larvae of Culiseta inornata and Aedes vexans observed northwest of Ames, Story County. (Gunderson, Apr. 27). MICHIGAN - First general adult emergence (mostly males) April 30. Numerous undetermined Aedes spp. emerged in Shiawassee County. (Dowdy). LOUISIANA - Larval collections in Jefferson Parish contained Anopheles crucians, Culex pipiens quinquefasciatus, and C. salinarius. C. salinarius dominant mosquito in light traps. Aedes vexans and Psorophora confinnis increased in light traps. Due to recent heavy rains, P. confinnis expected to increase. Stokes).

TEXAS - Culex salinarius averaged over 100 per trap night for several nights in Port Arthur area during April. Culex spp. were moderate throughout Jefferson County; Aedes sollicitans moderate during latter part of April and occurred in small numbers in northern part of county. Aedes taeniorhynchus present in southern and central portions. Aedes vexans collected in south Beaumont; Psorophora ciliata appeared throughout southern part of Jefferson County; P. confinnis occurred in all areas and was very abundant in north Beaumont area. Anopheles crucians and A. quadrimaculatus occurred throughout county. Mansonia perturbans collected in midcounty and south Beaumont areas. Uranotaenia lowii taken in Port Arthur area; U. sapphirina in south Beaumont area. Culiseta inorata last collected April 17. (Thompson).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Continues moderate on hogs in Mayes County. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - MISSISSIPPI - This species and Dermacentor variabilis heavy on 150 head of cattle in Madison County. (Young). OKLAHOMA - Continues moderate to heavy on cattle in Mayes and Choctaw Counties. (Okla. Coop. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - WISCONSIN - Active in several northern counties. (Wis. Ins. Sur.). MINNESOTA - Active in central counties. (Minn. Ins. Rpt.). RHODE ISLAND - Active in bayside sections of Washington County since early April. (Mathewson).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - WASHINGTON - Few ticks, probably this species, encountered by field crew in Daisy and Hunter areas of Stevens County April 17-21. (Nonini).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - ALABAMA - Numerous in a home following commercial control efforts at Sheffield, Colbert County. Second known report in State; reported in Morgan County several years ago. (Slay, Ledbetter).

HOUSEHOLDS AND STRUCTURES

ORIENTAL COCKROACH (Blatta orientalis) - OKLAHOMA - Heavier than normal in homes in several areas of State. (Okla. Coop. Sur.).

TERMITES - IOWA - Undetermined winged forms in Lee County. (Iowa Ins. Sur.).

BENEFICIAL INSECTS

LADY BEETLES - IDAHO - Abundant for this early in season. (Bechtolt). ARKANSAS - Hippodamia convergens very active in alfalfa in Conway County. Small numbers found in wheat in various areas. (Ark. Ins. Sur.).

A FLOWER BUG (Orius insidiosus) - DELAWARE - Adults common on alfalfa in most areas. (Burbutis). ARKANSAS - Adults increased in legumes and wheat in various areas. (Ark. Ins. Sur.).

LACEWINGS - IDAHO - Green lacewings abundant for this early in season. (Bechtolt). INDIANA - Young larvae of brown lacewings light in apple trees at Vincennes. (Dolphin, May 1).

PREDATORS - MISSOURI - Increased rapidly in fields where pea aphid populations high. Various lady beetles, syrphid flies, and lacewings now numerous. (Munson).

HONEY BEE (Apis mellifera) - KANSAS - Losses as high as 40 percent per colony from severe infection of Nosema apis in some apiaries in northeast area. (Iselin).

A SCELIONID WASP (Telenomus sp.) - MICHIGAN - Adults reared from gypsy moth eggs collected in Calhoun County. (Moore).

A BRACONID WASP (Bracon gelechiae) - INDIANA - This parasite of lesser peach tree borer reared from field-caged peach wood at Vincennes. (Dolphin, May 1).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - INDIANA - Adults ranged 60-1,200 per 100 sweeps of wheat in New Carlisle area. Cold weather retarded egg deposition and incubation. (Shade). MICHIGAN - Eggs numerous in research fields of small grains in Berrien County; no hatch observed. Adult numbers high in Berrien and Cass Counties where greatest injury occurred in past years. (Haynes). Very few adults taken in samplings in 4 southeast counties. First egg hatch could occur during next 7 days if warm weather prevails. (Dowdy).

A CUBAN MAY BEETLE (*Phyllophaga bruneri*) - FLORIDA - Adults increasing in blacklight traps in Miami area, but counts not yet completed. Apparently not as abundant as during late April and early May last year in some South Miami traps. (Habeck, Kerr).

EUROPEAN CHAFER (*Amphimallon majalis*) - NEW YORK - Third instars overwintered well; heavier in all areas. Some damage to wheat evident in Seneca and Wayne Counties. (N. Y. Wkly. Rpt., May 1).

GRASSHOPPERS - COLORADO - *Trachyrhachys kiowa* adults 2-3 per square yard on range grass near Burlington, Kit Carson County. Populations low, light damage apparent; no control applied. (Hantsbarger). NORTH DAKOTA - Egg development in Richland County ranged clear to segmented; most eggs coagulated. Most segmented eggs in lighter soil areas. Predators evident in light numbers throughout county. No desiccated eggs found. Moisture excessive in much of area. (Brandvik). MINNESOTA - Egg development unchanged; all in clear to early coagulation stage. (Minn. Ins. Rpt.). OKLAHOMA - Nymphal surveys in Delaware and Mayes Counties show very light hatch. First instars averaged 2 per sweep in crop margins and less than one in grassland. Hatch more general in Harmon and Washita Counties. Higher counts in grassland areas average 10 per square yard. *Ageneotettix deorum*, *Aulocara elliotti*, *Melanoplus bivittatus* and *Phlibostroma quadrimaculatum* hatching in western counties. Nymphs in first and second instars. (Okla. Coop. Sur.).

GYPSY MOTH (*Porthetria dispar*) - MICHIGAN - Very early hatch April 29 at Duck Lake, Calhoun County. High percentage of hatch May 2 on 50 acres northeast side of Duck Lake. This area sprayed May 3; general spray of 12,750 acres in Calhoun County May 6. (Turner).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ALABAMA - Larvae destroying cotton in isolated spots of several fields in Covington and Washington Counties. (Estes, et al.).

INSECT DETECTION

New United States Record

A LACE BUG (*Dictyonota fuliginosa* Costa) - WASHINGTON - Adult swept from grass August 23, 1964, at Seattle. Det. by C. J. Drake. Collected from Scotch broom (*Cytisus* sp.) at McChord Air Force Base, Spanaway, Pierce County, July 25, 1965. Det. by R. D. Froeschner. This lace bug is known to occur on broom in British Columbia. (Nakahara). Known host is Scotch broom (*Cytisus scoparius*). In England, adults occur from June through September on broom bushes, especially older plants with many seed pods. (PPC).

New State Record

A GELECHIID MOTH (*Oegoconia quadripuncta*) - DELAWARE - Adult collected in blacklight trap at Dover, Kent County, June 22, 1966, by J. Franklin. Det. by R. W. Hodges. (Burbutis).

New County and Island Records

ALFALFA WEEVIL (*Hypera postica*) - MISSOURI - Dallas, Howard, Laclede, McDonald, Morgan, and Webster Counties. KANSAS - Kiowa, Ford, Meade, Stanton, Grant, and Hodgeman Counties. (p. 381). MICHIGAN - Wayne and Wastenaw Counties. (p. 382).

BROWN RECLUSE SPIDER (*Loxosceles reclusa*) - ALABAMA - Colbert County. (p. 392).

A CONIFER APHID (Cinara carolina) - HAWAII - On Kauai. (p.   ).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap BL = blacklight I = incandescent MV = mercury vapor O = other	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Trichoplusia ni (cabbage looper)	Crops
FLORIDA																								
Gainsville 5/3			BL						13											1			1	
Sanford 4/25-27			BL	3					4										1				37	
ILLINOIS (County)																								
Champaign 4/27-5/3	34-65	0.31		16														3		47				
IOWA																								
Dubuque 4/16,20				12																95				
MARYLAND																								
Centreville 5/1-3				20																32				
MISSISSIPPI																								
Stoneville 4/29-5/5	43-82	1.97	2BL	16			8		5		20					1		3	35	23		1		
Rolling Fork 4/29-5/5	48-85	3.90	BL	5					2		7					1			6	2				
Tunica 4/29-5/5	43-82	1.5	BL	18			5		1		6							6	25	23				
MISSOURI																								
Portgeville 4/29-5/1				14							3						2	9	2	35				
SOUTH CAROLINA																								
Charleston 5/1-7	57-84	0.92	BL	17							3							2	2	1			2	
TENNESSEE (Counties)																								
Ames 4/25-5/1																				4				
Madison 4/25-5/1																				4				
Robertson 4/25-5/1											1									4				
Cumberland 4/25-5/1				4																14				
Greene 4/25-5/1				1																2				
Knox 4/25-5/1				3																2				
Johnson 4/25-5/1				9																21				
TEXAS																								
Brownsville 4/28-5/5	74-92	trace	2BL	19			20		35	34	83							3	12	1	2	2	266	
Waco 4/28-5/5				10					22	1	78							7	7		12		13	
WISCONSIN																								
Platteville 4/29-5/5			BL	3														1		18				

Weather continued from page 378.

TEMPERATURE: Cool weather continued west of the Rocky Mountains for the 6th consecutive week. It was the 3d cool week over the northern and central Great Plains. In contrast, temperatures over the lower Rio Grande Valley have averaged above normal for 10 weeks and over southern Florida for 7 weeks. Mild temperatures prevailed early in the week along the gulf and up the Atlantic coast with maximums in the 80's in southern New Jersey. Washington, D. C., was one of the warmest spots in the Nation with a high of 86°. Cool weather clung to the northern Plains as the temperature at Devils Lake, North Dakota, dropped to 1° on Wednesday, a new low extreme for the State and besting the old record by 4°. Many stations in the central part of the Country registered near-record cold on Wednesday morning. Weekly temperatures averaged slightly above normal over southern Texas and the Florida Peninsula and below normal over the rest of the Nation--substantially the same pattern as a week earlier. Most of the northern and central Plains averaged 10°-20° below normal. (Summary supplied by Environmental Data Service, ESSA).

HAWAII INSECT REPORT

Turf - A BILLBUG (*Sphenophorus venatus vestitus*) moderate on Kaanapali Golf Course on Maui; damage to turf very light. Chemical control measures being utilized. (Miyahira).

Vegetables - CARMINE SPIDER MITE (*Tetranychus telarius*) medium to heavy on bean fields in Waianae and Waimanalo, Oahu. Population increase in these low elevation farm areas due to warmer weather. (Yamamoto, Sato).

Ornamentals - FOREST TREE TERMITE (*Neotermes connexus*) heavy on large clumps of azalea plants used as hedge in Hilo, Hawaii Island. (Yoshioka).

Forest and Shade Trees - ACACIA PSYLLID (*Psylla uncatoides*) nymphs and adults moderate on *Acacia koa* throughout Kawailoa Forest Reserve in northern Oahu; averaged 8 per sweep. Foliage injury light on many trees. (Funasaki, Jackson). Adults of a CONIFER APHID (*Cinara carolina*) found on slash pine (*Pinus elliottii*) at Kokee, Kauai. This is new island record. This aphid first reported in State on loblolly pine seedlings at Olinda, Maui, in June 1964. (Au, Chong). BLACKBURN BUTTERFLY (*Vaga blackburni*) larvae light to medium on blossoms of Formosa koa in Waimanalo, Oahu. This is endemic species commonly found on *Acacia koa* and *Dodonaea* sp. in native forests; occasionally breeds on various leguminous trees and several other plants in the lowlands. (Nakao).

Households and Structures - Large swarms of FORMOSAN SUBTERRANEAN TERMITE (*Coptotermes formosanus*) occurring in Lihue, Kauai; heaviest in past 3 years. Few earlier colonizing flights occurred. Several new infestations found in Wailuku area, Maui. On oahu, light trap collections indicate heaviest flights occurring in Waiphau, Ewa, Kailua, and several areas in Honolulu. (Au, Miyahira, Nakahara).

Beneficial Insects - Larvae of an OLETHREUTID MOTH (*Episimus* sp.) heavy on Christmas-berry in Kunia, Oahu. Damage to foliage extensive on many trees. This insect purposely introduced from Brazil in 1954 to aid in control of Christmas-berry, a pasture weed. (Fujii, Park).

Miscellaneous Pests - Moderate infestations of GIANT AFRICAN SNAIL (*Achatina fulica*) discovered in Wahiawa Gulch, Kauai, about one mile west of Kalaheo. Surveys indicate infestation covers about 1.5 acres. Over 100 snails, mostly juveniles, collected. Surveys and eradication measures continue. Caused moderate damage to *Phalaenopsis* orchids in Hana, Maui. (Au, Miyahira).

CORRECTIONS

CEIR 17(18):368 - SOFT SCALES - Delete Carulaspis minima. Should have been carried under ARMORED SCALES in preceding paragraph.

CEIR 17(18):369 - MOSQUITOES - MINNESOTA - Lines 2 and 3 .... C. norsitans. Should read... C. morsitans.

CEIR 17(19):371 - HAWAII INSECT REPORT - Households and Structures - FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) should read a SUBTERRANEAN TERMITE (*Coptotermes* sp., probably *formosanus*).

THE PRESERVATION AND SHIPMENT OF DEAD INSECTS FOR DETERMINATION

1. Preserved in liquid

Specimens of the following groups should be preserved in alcohol:

- Anoplura (sucking lice)
- Coleoptera (beetles)
- Diptera (only minute forms such as midges and fungus gnats - never mosquitoes) see item 2.
- Hemiptera (true bugs) (may be submitted in alcohol). If submitted dry, see instructions item 2, page 2.
- Homoptera (leafhoppers, aphids, etc.) see also item 2.
- Hymenoptera (ants, gall wasps and parasites only) see also item 2.
- Isoptera (termites or white ants)
- Mallophaga (bird lice or biting lice)
- Siphonaptera (fleas)
- *Thysanoptera (thrips)

- Collembola (springtails)
- Psocoptera (Corrodentia) (psocids or booklice)
- Dermaptera (earwigs)
- Embioptera (embiids)
- Ephemeroptera (mayflies)
- Plecoptera (stone flies)
- Thysanura (silverfish)
- Zoraptera

including the immature stages of all orders; also, other arthropods such as centipedes, millipeds, mites, spiders, ticks, etc.

*While thrips preserved in 75 percent grain or rubbing alcohol are usable, better study material results if thrips are preserved in a fluid consisting of 8 parts 95 percent alcohol, 5 parts distilled water, 1 part glycerine, and 1 part glacial acetic acid (AGA).

PLEASE FOLLOW THESE IMPORTANT INSTRUCTIONS:

a. 70-75 percent grain alcohol is the best general liquid preservative and should always be used unless some other preservative is especially requested. The use of 95 percent alcohol is to be avoided because it tends to harden the specimens. NOTE. Rubbing alcohol is acceptable.

b. Larvae should be killed in very hot or boiling water and allowed to remain in the water from one to five minutes according to size, before being transferred to alcohol.

c. Whenever practicable, sort to species or obvious kinds, and send only one species or kind in a vial.

d. Delicate insects break up when they slosh around in a vial partly filled with preservative. Potential damage can be avoided if the specimens are confined to the bottom of the vial, but not squashed, by a plug of paper tissue that is tight enough so it doesn't move during transportation of the vial. Be sure the cork or screw cap is tight so preservative will not leak out. Scotch tape is not needed nor recommended for a properly closed vial.

e. Plant materials should be placed in separate vials and not combined in a vial containing insects, since the latter are easily damaged if the plant specimen disintegrates en route.

2. Preserved dry

Adult specimens of the following groups should be preserved dry; preferably mounted.

Diptera (flies and mosquitoes) (except certain minute forms such as midges, and fungus gnats). See also item 1
Hemiptera (true bugs) (may be submitted dry only if pinned or on points. Do not put in pill boxes). See also item 1, page 1
Homoptera (scale insects on host material, and whiteflies)
Hymenoptera (bees, and wasps and sawflies) see also item 1
Lepidoptera (moths and butterflies)
Mecoptera (scorpionflies)
Neuroptera (lacewings, dobsonflies, ant lions, etc.)
Odonata (dragonflies and damselflies)
Orthoptera (grasshoppers, cockroaches, etc.)
Trichoptera (caddisflies)

PLEASE FOLLOW THESE IMPORTANT INSTRUCTIONS:

a. Most insects that are to be preserved dry should be killed in cyanide jars. Some entomologists prefer other killing agents, particularly ethyl acetate.

b. Material to be shipped dry and unmounted should be placed in pill boxes between layers of cellucotton or tissue tightly enough so that specimens will not move about, but not pressed down enough to rub, flatten, or distort the specimens. Cotton should never be used, as appendages catch in the fibers and are apt to be broken off.

c. Specimens should be placed in pill boxes while they are still limber. If for any reason the insects become dry and brittle, they should be partially relaxed in a moist chamber before packing.

d. Lepidoptera should be handled as infrequently as possible. Medium and small sized moths and butterflies should be packed one specimen to a layer of cellucotton.

e. Do not put naphthalene or paradichlorobenzene in the pill boxes where it will come in contact with specimens.

f. Bulky insects, or pieces of host plants bearing insects such as Coccidae or Aleyrodidae should be partially or fully dried out before being placed in a container, or packed in a container which will permit desiccation to continue after closure. Repeatedly taxonomists have received fleshy parts of plants, presumably infested with scale insects, which had molded badly or completely decayed by the time they were received, merely because they were too wet when they were packed.

g. If any insects are reared, they should be held alive until their wings have expanded and hardened, and the full body and wing colors are attained.

h. Pinning or pointing adult insects in the field is recognized as the most desirable method of obtaining perfect specimens. This should be done whenever time and facilities permit. One or two mounted specimens of a small insect can be satisfactorily pinned into the cork and placed inside of a shell vial.

3. Use of Form PPC 3-9 and Form PPC 3-9A, Specimens for Determination

These forms are preferred for recording the necessary data on collections and to distinguish between collections submitted by certain Federal Agencies and those submitted by other collectors. If these forms are not available the same information should be included in a transmittal letter or on a separate piece of paper.

With few exceptions (known to those people who are concerned) the white Form PPC 3-9 is used by Federal workers. The form printed on green paper, PPC 3-9A is used by all other cooperators.

These forms are available in pads of 20 sets each and they may be obtained from the Plant Pest Control Supervisor in Charge in any State, from the Regional PPC Offices in Gulfport, Mississippi, Minneapolis, Minnesota, Morrestown, New Jersey or Oakland, California, or direct from the Plant Pest Control Division, Federal Center Building, Hyattsville, Maryland, 20781.

All specimens submitted should be accompanied by accurate and complete information, preferably on Forms PPC 3-9 or 3-9A, Specimens for Determination. (See illustration at the end of this instruction sheet for guidance.) All items, such as Collection Number, State, County, etc., should be printed or *legibly filled in*. Use sufficient pressure when writing to insure legible carbon copies. *Do not* use the open box at the bottom of the form which is reserved for the taxonomist. Any notes or small maps should be on the back of the form.

Collection numbers are very important. A dependable system that avoids errors and can be easily traced, utilizes the collector's initials, consecutive collection numbers, and the year; namely, John J. Doe - JJD-1-64, JJD-2-64, etc. The individual collector must exercise caution and not duplicate the numbers. Never start over within the calender year, but continue with the consecutive numbers though moving to another township, county, or State. A new start should be made only at the beginning of each calendar year.

Five forms or a complete manifold set should be prepared for each collection. After preparation, remove 4 green copies for transmittal with the specimens; remove the extra carbon on the back, but do not remove any interleaved carbons.

Do not tear the tab from the bottom of the set, as this will release the interleaved carbons. The yellow copy should remain in the book for collector's reference.

When specimens are known to represent various stages of a single species, this should be indicated on the data sheet.

Because many insects habitually rest on plant species other than those which serve as their food, the "HOST" section should indicate whether the insects were merely "resting," "found on," etc., or whether they were obviously using the plant for a food source. Many identifications are aided or confirmed by accurate host information, and some are not possible without it. The part of the plant on which the insect was found should always be indicated, especially for immature forms.

After the identification is finished, the Beltsville office will return a completed copy of the form to the collector. Separate procedures are followed when various Federal agencies submit specimens.

4. Shipment of Insects in Vials

   a. Vials should be well packed in mailing tubes. Unless absolutely necessary, the PPC form, "Specimens for Determination" should *not* be wrapped or rolled around the vial and held by rubber bands. Such procedure results in considerable lost time on the part of preparators. The determination slips should be loosely rolled and placed in the mailing tube first, the vials then packed in the center.

b. Of equal importance is the need to properly cross identify vials and collection slips. The safest procedure is to record the collection number and important collection data on a small slip of paper and place it in the vial. This procedure correctly links the PPC form with the proper vial in case they become separated at some point along the way. The slip in the vial containing the collection number should be as small as practicable to use in the field inorder to avoid damage to fragile specimens. CAUTION: The ink in many ball point pens, and some other inks are soluble in preservatives and thus are useless to mark the slips that go into the vials. A good medium grade lead pencil is most satisfactory. If there is reason to direct a letter to the insect identification office at Beltsville, regarding a collection, please refer to the collection number so the two items can be brought together.

5. Shipment of Mounted Insects

a. Only boxes with the bottom securely lined with cork or some other appropriate material should be used. Pins should be set firmly in the cork. If the specimen is heavy, or if the pin carries some other heavy object such as a microvial, additional pins should be firmly set on each side, both to prevent the specimen from spinning on its pin, and to prevent the pin from coming out of the cork. Never put a vial of material in a box of pinned specimens. Heavy specimens or other objects that come loose in transit can break and ruin all the specimens in a box.

b. The shipping carton for a box of specimens should provide adequate space, minimum of two inches, on every side for the inclusion of shock-absorbing material such as excelsior, or shredded or crumpled paper. The box containing specimens should never be wrapped and mailed without this protection.

c. Specimens mounted on microscope slides should be shipped only after the slides are thoroughly dry. Slides are best shipped in standard slide containers with a layer of cotton or cellucotton on top to hold them in place. If slide containers are not available, each slide should be wrapped in soft paper so as to avoid crushing the specimen or dislodging the cover glass.

6. Emergency Priority - Mailing

Occasionally, if circumstance warrants, submissions may be marked RUSH on the mailing label and at the top of the PPC 3-9 or 3-9A forms, and they will be given priority; also, wire replies, if requested, will be made under the same conditions.

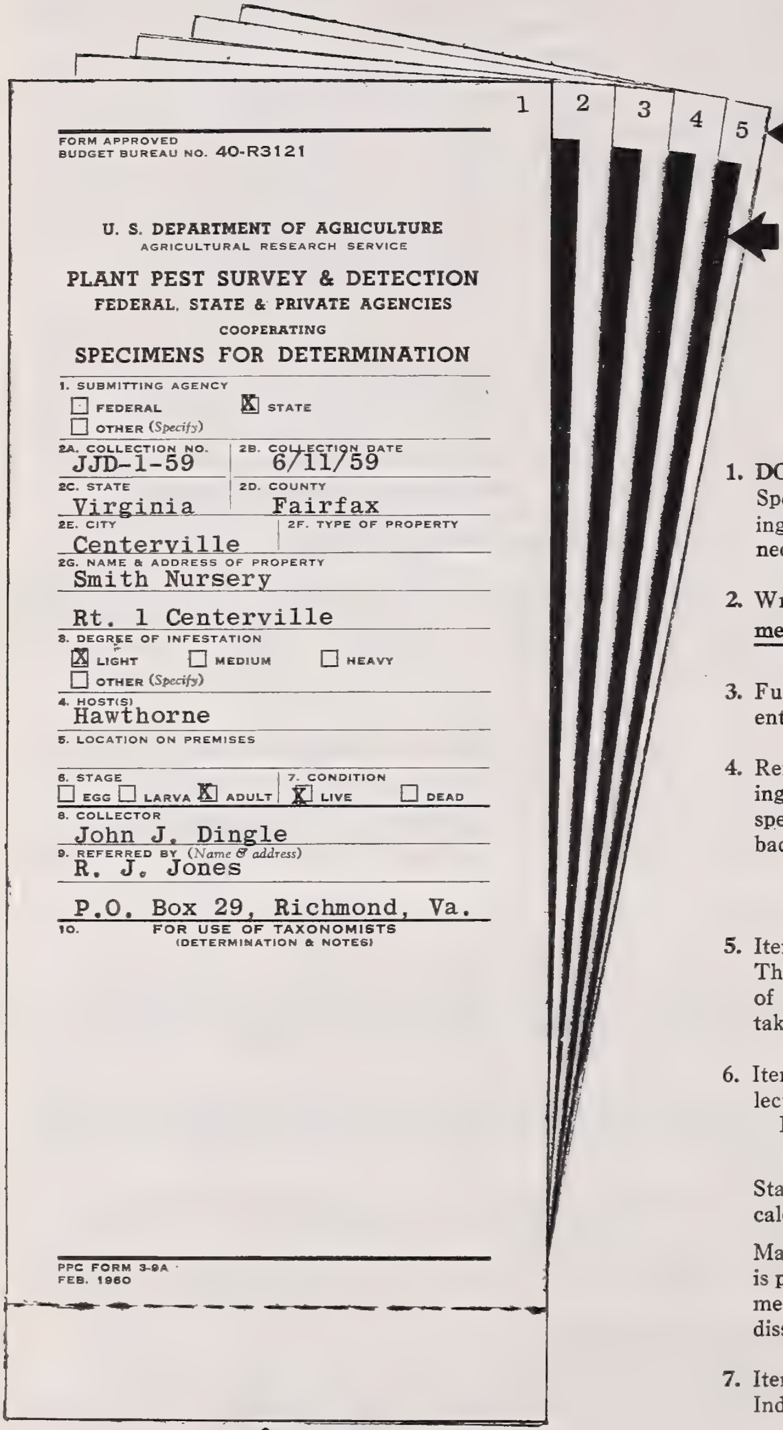
Specimens should not be forwarded to Beltsville if adequate determinations can be made in the field. This policy reduces the workload on the limited number of Federal taxonomists.

Unless specific handling instructions prevail, all specimens should be addressed to:

Chief, Insect Identification & Parasite Introduction Research Branch
Entomology Research Division
Beltsville, Maryland

Survey and Detection Operations
PPC - ARS - U.S.D.A.
Revised May 1964

INSTRUCTIONS FOR USE OF PPC FORM 3-9A



FORM APPROVED
BUDGET BUREAU NO. 40-R3121

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

PLANT PEST SURVEY & DETECTION
FEDERAL, STATE & PRIVATE AGENCIES
COOPERATING
SPECIMENS FOR DETERMINATION

1. SUBMITTING AGENCY ☐ FEDERAL ☒ STATE ☐ OTHER (*Specify*)

2A. COLLECTION NO. JJD-1-59 | 2B. COLLECTION DATE 6/11/59

2C. STATE Virginia | 2D. COUNTY Fairfax

2E. CITY Centerville | 2F. TYPE OF PROPERTY

2G. NAME & ADDRESS OF PROPERTY Smith Nursery
Rt. 1 Centerville

3. DEGREE OF INFESTATION ☒ LIGHT ☐ MEDIUM ☐ HEAVY ☐ OTHER (*Specify*)

4. HOST(S) Hawthorne

5. LOCATION ON PREMISES

6. STAGE ☐ EGG ☐ LARVA ☒ ADULT | 7. CONDITION ☒ LIVE ☐ DEAD

8. COLLECTOR John J. Dingle

9. REFERRED BY (*Name & address*) R. J. Jones
P.O. Box 29, Richmond, Va.

10. FOR USE OF TAXONOMISTS (DETERMINATION & NOTES)

PPC FORM 3-9A
FEB. 1960

Retain yellow copy

Remove only last carbon

DO NOT REMOVE THIS TAB

INSTRUCTIONS

FOR USE OF PPC FORM 3-9A

1. DO NOT SHIP LIVE SPECIMENS
   Special instructions for preserving, packing, and shipping specimens are available, if needed.

2. Write legibly — use ball point pen or medium hard pencil.

3. Furnish complete information for each entry.

4. Remove the 4 green copies intact, including stub and carbons, for transmittal with specimens (Remove the extra carbon on back.) Retain yellow copy.

DO NOT WRITE IN ITEM 10.

5. Items 2A — 2G
   These items relate to the location and type of property from which specimens are taken.

6. Item 2A. Assign number for each collection.
   Example: for John J. Doe JJD-1-59
   JJD-2-59

   Start with new series of numbers each calendar year.

   Make certain that corresponding number is placed on slip of paper in vial with specimens. Use only lead pencil. Some inks dissolve in the preservatives.

7. Item 2F.
   Indicate farm, feed mill, nursery, etc.

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
17(19):396-400, 1967

Cooperative ECONO REPOR

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF [illegible]

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20782

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